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Fast Simulations at LHCb

Monday 4 November 2019 14:00 (15 minutes)

The LHCb detector at the LHC is a single forward arm spectrometer dedicated to the study of $b-$ and $c-$ hadron states. During Run 1 and 2, the LHCb experiment has collected a total of $9\,\mathrm{fb}^{-1}$ of data, corresponding to the largest charmed hadron dataset in the world and providing unparalleled datatests for studies of CP violation in the B system, hadron spectroscopy and rare decays, not to mention heavy ion and fixed target datasets. The LHCb detector is currently undergoing an upgrade to nearly all parts of the detector to cope with the increased luminosity of Run 3 and beyond. Simulation for the analyses of such datasets is paramount, but is prohibitively slow in generation and reconstruction due to the sheer number of simulated decays needed to match the collected datasets. In this talk, we explore the suite of fast simulations which LHCb has employed to meet the needs of the Run 3 and beyond, including the reuse of the underlying event and parameterized simulations, and the possibility of porting the framework to multithreaded environments.

Consider for promotion

Yes

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